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Major life events vs. daily hassles : comparison of predictive values in relation to athletic injury occurrence

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MAJOR LIFE EVENTS VS. DAILY HASSLES: COMPARISON OF PREDICTIVE VALUES IN RELATION TO ATHLETIC INJURY OCCURRENCE

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ABSTRACT

MAJOR LIFE EVENTS VERSUS DAILY HASSLES: COMPARISON OF PREDICTIVE VALUES IN RELATION TO ATHLETIC INJURY OCCURRENCE

by Shelley Orlando Hicks

Two stress scales and their prediction of athletic injuries among 78 collegiate football players were compared. The SARRS (Social and Athletic Readjustment Rating Scale) was administered once at the beginning of the football season and the ADHS (Athletic Daily Hassles Scale) was administered at the end of 3 consecutive months during the same season. Injury data (days of missed practice) for each athlete were recorded on a daily basis. Correlational values computed for each subject for each questionnaire and for each month of the football season revealed a significant negative value for major life stresses with daily hassles in each case except for the administration of the ADHS during the 2nd month in which there was a positive correlation with athletic injuries. Although neither scale predicted Days of Missed Practice very well (i.e., all correlations were low), the ADHS appeared to be a reliable measure as indicated by a high intercorrelation (i.e., $\underline{r}$ = .77).

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CHAPTER I

INTRODUCTION

There are an estimated 5-6 million athletic and recreational injuries that occur each year in the United States (Kraus & Conroy, 1984). This incidence of sport related injuries has spurred researchers to investigate the possible etiological factors involved.

The etiology of athletic injuries appears to be a multifaceted problem, and primarily the literature has focused on extrinsic factors such as coaching techniques, game rules, equipment, and playing facilities. However, more recently, studies have emphasized the role of individual physical characteristics (e.g., age, gender, injury history, somatotype, physical fitness, flexibility, and malalignment of the lower limbs) and psychological and psychosocial factors (e.g., Anderson & Williams, 1988; Blackwell & McCullagh, 1990; Coddington & Troxell, 1980; Cryan & Alles, 1983; Hanson, McCullagh, & Tonymon, 1992; Kerr & Minden, 1988; Lysens, Auweele, & Ostyn, 1986; May, Veach, Southard & Herring, 1985; Passer & Seese, 1983; Petrie, 1993; Williams, Tonyman, & Wadsworth, 1986). This study was designed to examine the contribution of one of these so-called intrinsic factors; that is the relationship between psychosocial stress and the incidence of athletic injuries.

Stress is an emotional factor that causes bodily or

mental tension and may be a factor in disease causation (Mish, 1983). Greenberg (1983) defines stress as a combination of a stressor and a stress reactivity. A stressor is "an event or condition that may be purely physical, social or psychological-including anticipation and imagination-and that triggers a stress reaction" (Girdano & Everly, Jr., 1986, p.6). For example, a stressor may be a major life event (e.g., marriage or a death in the family) or even a chronic daily hassle (e.g., parking or traffic problems). Although there is significant evidence in the literature that daily hassles appear to be better predictors of illness than major life events, studies in the stress-injury literature have failed to utilize daily hassle scales in their research. Comparing predictive values of each of the stress scales, in relation to injury occurrence, is the focus of this study.

Statement of the Problem

Even though daily hassles have been found to be significantly better predictors of psychological symptoms than major life events in the stress-illness literature (Kanner, Coyne, Schaefer, & Lazarus, 1981; Monroe, 1983; Weinberger, Hiner, & Tierney, 1987) only major life events have been studied within the stress-injury literature (Coddington & Troxell, 1980; Cryan & Alles, 1983; Kerr & Minden, 1988; Lysens et al., 1986; May et al., 1985). Anderson & Williams (1988) believe this to be a weakness of

these studies in that they measure only major stressful events. Stress may also stem from minor daily problems or irritations. Although it may be necessary to develop an athletic daily hassles scale in order to generalize to an athletic population, the relationship of daily hassles to athletic injury needs to be investigated (Anderson & Williams, 1988).

Statement of the Purpose

The purpose of this study was 1) to develop a daily hassles scale unique to athletes (Athletic Daily Hassles Scale) and 2) to compare the values (in relation to athletic injury occurrence) of two stress scales, the Social and Athletic Readjustment Rating Scale (SARRS) which measures major life events, and the Athletic Daily Hassles Scale (ADHS), which was used to measure chronic daily hassles of athletes.

Research Hypothesis

A review of the stress-illness literature that compares life events with daily hassles of the general population lead to the prediction that the Athletic Daily Hassles Scale would be a better predictor of days of missed practice due to athletic injury than would the Social and Athletic Readjustment Rating Scale.

Assumptions

The following assumptions were made. It was assumed that:

1. The subjects did answer all questions truthfully and to the best of their ability.
2. The scales used were valid and reliable.
3. The subjects were motivated to respond to each questionnaire conscientiously and truthfully.
4. All injuries were immediately reported to the medical staff.
5. Injury rates were classified and recorded accurately and consistently.

Definition of Terms

The following terms are defined.

Daily Hassle. "Daily hassles are experiences and conditions of daily living that have been appraised as salient and harmful or threatening to the endorser's well-being" (Lazarus, 1984, p. 376).

Injury. For the purposes of this study, the operational definition of an injury that was used was "any injury or illness that keeps an athlete from participating on the performance day (game or practice) following the day of the injury occurrence" (Cryan & Alles, 1983, p. 55).

Life Change Unit (LCU). "A Life Change Unit (LCU) is a measure of the amount of significant changes in your life to which you have had to adjust" (Greenberg, 1983, p. 81).

Major Life Event. Major Life Events are significant changes in a person's life to which adjustment is needed (Greenberg, 1983).

NAIRS. The National Athletic Injury Reporting System (NAIRS), is an established surveillance service and research unit through which injuries are systematically reported and classified into levels of severity, i.e., minor = injured athlete returns to play within 7 days, moderate = injured athlete returns to play between 8 and 21 days, and major = injured athlete is out more than 21 days (Coddington & Troxell, 1980; Cryan & Alles, 1983; Williams, Tonyman & Wadsworth, 1986).

Stress. "Stress is an emotional factor that causes bodily or mental tension and may be a factor in disease causation" (Mish, 1983, p. 1166).

Stressor. A stressor is "an event or condition that may be purely physical, social, or psychological-including anticipation and imagination-and that triggers a stress reaction" (Girdano & Everly, Jr., 1986, p.6).

Stress Reactivity. A stress reactivity is the way in which an individual responds to a particular stressor, i.e. "flight or fight response" (Greenberg, 1983, p. 11).

Limitations

Limitations regarding the number of days missed from practice and/or games include: 1) an athlete's desire to return to play, 2) importance of an upcoming game, and 3) availability of an acceptable substitute. In general these factors were perceived to be limitations in that each or all could artificially change the results of the study (i.e.,

may artificially shorten the Days of Missed Practice by virtue of one of these motivating or influencing external factors).

Other limitations included the subjectiveness of injury evaluation or the fact that two athletes with similar injuries may or may not seek medical attention.

The use of retrospective measures was also be a limitation of the study in that memory was involved, and thus accurate recall of life events within the past year and daily hassles within the last month was necessary.

Delimitations

The subjects for this study were male football players from several local junior colleges (e.g., College of San Mateo, DeAnza College, Foothill College, and West Valley College). The subjects ranged in age from 17-24 years old.

Summary

With the high incidence of athletic injuries occurring in the U.S., researchers have begun to investigate the possible causes involved. Recently, several studies have looked specifically at psychosocial intrinsic factors, such as major events in an athlete's life (Anderson & Williams, 1988; Coddington & Troxell, 1980; Cryan & Alles, 1983; Kerr & Minden, 1988; Lysens et al., 1986; May et al., 1985; Passer & Seese, 1983; Williams, Tonyman, & Wadsworth, 1986). Major life events, such as death of a spouse, divorce, or marriage have been found to be significantly related to

illness in the stress-illness literature and so were of interest to researchers in the area of stress and athletic injury occurrence. The study of daily hassles as stressors have also been investigated in the stress-illness literature (Kanner et al., 1981; Monroe, 1983; Weinberger et al., 1987). Although it appears that daily hassles seem to be better predictors of illness, studies in the stress-injury literature have not yet utilized daily hassle scales. Therefore, comparing predictive values of a life events scale versus a daily hassle scale, was the focus of this study.

CHAPTER II

REVIEW OF LITERATURE

Introduction

The following discussion includes a review of the stress-illness literature, and the stress-injury relationship. In the stress-illness (indicating a relationship between stressful life events and the occurrence of illness) literature, both major life events and daily hassles have been measured. Although an increasing amount of evidence suggests that daily hassles may be better predictors of stress-linked illness than major life events, this concept has not been investigated in relationship to the incidence of athletic injuries. Put differently, in the context of studying the etiology of athletic injuries, major life events, measured with the use of life event scales, such as the Social and Athletic Readjustment Rating Scale (Bramwell et al., 1975), have been found to be significant but modest predictors of football injuries. However, daily hassles scales, which are thought to be even better predictors of stress-linked illness, have not been used (Cryan & Alles, 1983). As Anderson and Williams (1988) point out, this may be a major weakness in the stress-injury literature.

Stress-Illness Literature

Major Life Events. As early as the 1940's, Adolph Meyer, a psychiatrist, had devised a "life chart" that

provided a method for demonstrating the relationship of psychological and sociological events to be processes of health and disease (Cryan & Alles, 1983). Meyer emphasized a number of significant events in a person's life, such as "changes of habitat, school entrance, graduations, dates of important births and deaths in the family" (p. 52). The basic view is that experiencing major life events requires adjustment which inhibits the body's natural resistance to illness. This in turn may be revealed as physical and/or psychological symptoms (Creed, 1985; Rahe, Mahan, Jr., & Arthur, 1970; Rahe, Meyer, Smith, Kjaer, & Holmes, 1964).

Holmes and Rahe (1967) were early investigators in the stress-illness relationship. In their study involving 394 male and female subjects who were all 30 years of age or older, the Social Readjustment Rating Scale (SRRS) was developed to measure life events. Each subject was asked to complete a paper and pencil test that included 43 life event items which Holmes and Rahe had derived from their clinical experience. In responding to these items, the subjects rated each of these life events as to its relative degree of necessary readjustment. These ratings were based on subjects' personal experience as well as what they had learned from others. As a frame of reference, Marriage, event 1, was given an arbitrary value of 500 by Holmes and Rahe and the subjects were given the option of rating the 43 items (e.g., Troubles with boss, Detention in jail, Death of

a Spouse) as either higher, lower, or equal to 500, depending on the readjustment they felt was needed for that particular experience. The outcome of this effort was The Social Readjustment Rating Scale (SRRS). Subsequent studies using this scale discovered that onset of illness is significantly associated with an increase in the number of social events which require some adaptive or coping behavior on the part of the involved individual (e.g., Rahe, 1968; Rahe et al., 1970; Rahe et al., 1964; Sarason, Johnson, & Siegel, 1978). To elaborate in a retrospective study, Rahe (1968) administered a life event scale (Schedule of Recent Experiences) and gathered data from nearly 2500 enlisted men and officers aboard three U.S. Navy Cruisers regarding life changes that may have occurred in their lives during a 6 month period. Two of the cruisers were sent to Vietnam and put into a stressful 6 months of intermittent engagement in gunfire support operations, whereas the third group spent their 6 months in the Mediterranean in fleet training. All medical records were reviewed at the end of the 6 months and compared to the life-change data that were obtained from each man initially. Each of the men was labeled as part of a high risk group or a low risk group depending on their life change unit (LCU). The high risk group had significantly more men who developed at least one illness during the 6 months. The high risk group also had more illness severity, each month over the 6 month period. Since

most of the men were fairly young and therefore highly resistant to most diseases, the author believed that the results were all the more meaningful. Also, since most of the illnesses recorded were not serious ones, strong support was gathered for the idea that "subjects prone to merely minor illness patterns may be readily identifiable in illness prediction studies" (Rahe, 1968, p. 1126).

In 1970, Rahe et al. decided to put the life stress and subsequent illness hypotheses to a prospective test. Once again, the test was carried out on virtually the entire group of men aboard three U.S. Navy cruisers (2664 men). Each of these subjects completed a life changes questionnaire prior to a cruise of from 6-8 months duration. Cruise period illness data was gathered on over 90 per cent of those men sampled by the questionnaire. The results indicated a positive relationship between crew members' pre-cruise life change intensity and their number of reported illnesses throughout their time at sea. In support of previous retrospective studies, a linear relationship was seen between the subjects' recent life change intensities and their cruise period illness rates.

Daily Hassles. Daily hassles are "experiences and conditions of daily living that have been appraised as salient and harmful or threatening to the endorser's well-being" (Lazarus, 1984, p. 376). Daily hassles include annoying practical problems such as losing things or traffic

jams and occurrences of chance such as inclement weather, as well as arguments, disappointments, and financial and family concerns (Kanner et al., 1981). Several investigators have discussed the significance of minor life events (daily hassles) as predictors of psychological distress and other negative health outcomes (Kanner et al., 1981; Lazarus, 1984; Monroe, 1983; Weinberger et al., 1987). Monroe (1983) found that high stress levels and illness were significantly related, and more specifically, daily hassles were a better predictor of illness than major life events. In his study, subjects were 73 volunteer employees from a moderate size corporation ranging in age from 18-58 years. Each participant received three measures assessing different dimensions of psychosocial functions (i.e., major life events, minor daily events, and psychological status). The results of this study showed a strong correlation between total frequency of hassles and psychological symptoms when analyzed both retrospectively (hassles and symptoms analyzed at the same time) and prospectively (hassles measured initially and symptoms later). Additionally, hassles were better predictors of subsequent psychological symptoms than were major life events.

Other researchers agree with this outcome (Kanner et al., 1981; Lazarus, 1984; and Weinberger et al., 1987). Kanner et al. (1981) conducted a 12 month study which consisted of 100 middle-aged subjects (52 women, 48 men) of

similar race, level of education, income, and religion. A number of measures were administered, including The Hassles Scale, The Uplifts Scale (which includes items such as, relaxing, spending time with family, and using skills well at work), and a life events scale, the Bradburn Morale Scale. Mental health status was assessed by the Hopkins Symptom Checklist (HSCL). The Hassles and Uplifts Scales were administered once a month for 10 consecutive months. The results of this study indicated that the Hassles Scale was a better predictor of concurrent and subsequent psychological symptoms than were the life events scores, and that the scale shared most of the variance in symptoms accounted for by life events. When the effects of life events scores were removed, hassles and symptoms still remained significantly correlated.

Weinberger et al. (1987) investigated the impact of frequently occurring minor stressors (hassles) upon health status in a sample of low-income, elderly persons with osteoarthritis. Using a modified hassles scale, the investigators were able to replicate earlier studies in a demographically dissimilar sample. Significant correlations were found between hassles and valid physical health measures, strengthening the conceptual development of hassles (Weinberger et al., 1987).

Stress-Injury Literature

Bramwell, Masuda, Wagner, and Holmes (1975) expanded

upon Holmes' earlier work by modifying the life-change scale to athletic populations. The SRRS became the SARRS and was administered to 75 college varsity football players at the University of Washington. Statistical differences in mean stress scores were found between the injured and non-injured groups. Football players with low, moderate and high life change scores could be predicted to be at proportionate risk for sustaining injuries.

Another study involving college level football players was conducted by Cryan and Alles (1983). Once again the SARRS was utilized. This investigation attempted to replicate Holmes and Rahe's 1967, University of Washington study and to incorporate some of the recommendations perceived by Holmes to be improvements in research design. For example, a larger sample was used. The University of Washington study collected data on 82 players, whereas Cryan and Alles (1983) collected data on 151 players from three institutions. In the Bramwell study, all injuries, minor as well as major were grouped together and given equal weight in the analysis of data. Cryan and Alles (1983) classified injuries as minor, moderate and major, allowing them to determine whether more severe injuries were associated with higher scores on the SARRS, showing more stress. Results of this study led to a number of conclusions: a) college football players who experience high life stress are more likely to sustain an injury than players experiencing low

levels of stress; b) these same players are more likely to sustain multiple injuries during the playing season; and c) players with high stress are not at greater risk of sustaining a major injury than players with low level stress.

Coddington and Troxell (1980) looked specifically at 114 football players from three New Orleans high schools utilizing The Life Event Scale for Adolescents (LES-A). The LES-A, developed by Coddington, is similar to the SRRS, but designed for use with children and adolescents. It was found that players who experienced more family instability, specifically due to parental illnesses, separations, divorces, and deaths, were more likely to sustain significant injuries.

Sports and activities other than football have been studied in this area of stress and injury occurrence, but the results have not been as consistent as with football. For example, two studies, one involving gymnasts and the other general physical education students, have found evidence supporting the stress-injury relationship (Kerr & Minden, 1988; Lysens, Auweele, & Ostyn, 1986). Yet, several other studies involving volleyball players, basketball players, and cross-country runners have not (Williams, Haggert, Tonyman & Wadsworth, 1986; Williams, Tonyman, & Wadsworth, 1986). In the study that involved male and female Division I volleyball players, the authors did not

find any relationship between life stress and injury, regardless of how the data were analyzed, i.e., injured vs. non-injured, high stress vs. low stress, severity of injury (Williams, Tonyman, & Wadsworth, 1986). They state that they had a number of methodological strengths such as a large number of subjects, wide geographic representation, both sexes, and a variety of athletic training and coaching personnel. The study involving basketball players and cross-country runners was thought to have too few subjects and their sample size may have influenced the results (Williams, Hagget, Tonyman, & Wadsworth, 1986). Inherent differences between the two sports may be another viable explanation for the conflicting results, particularly the contact/non-contact and attentional focus differences between volleyball and football.

Summary

A review of the stress-illness literature and stress-injury literature has been presented. The stress-illness literature has been divided into two parts; studies regarding life events (Holmes & Rahe, 1967; Rahe, 1968; Rahe et al., 1970) and those involving daily hassles (Kanner et al., 1981; Lazarus, 1984; Monroe, 1983; Weinberger et al., 1987). Up to this time, studies in the stress-injury literature have only examined major life events as being a major factor in possible injury prediction (Bramwell et al., 1975; Coddington & Troxell, 1980; Cryan &

Alles, 1983; Kerr & Minden, 1988; Lysens et al., 1986). Even though daily hassle scales in the stress-illness literature appear to be more effective in predicting illness, an athletic daily hassle scale has not yet been developed and utilized with an athletic population. The purpose of this proposed study is to develop an athletic daily hassles scale unique to athletes (ADHS) and to compare predictive values (in relation to athletic injury occurrence) of this hassles scale with the SARRS, which measures major life events of athletes.

CHAPTER III

PROCEDURES

Introduction

Daily hassles, which are minor chronic stressors, as measured by the Daily Hassles Scale (DHS), have been found to be significantly more effective as predictors of psychological symptoms than are major life events in the stress-illness literature (Kanner et al., 1981; Monroe, 1983; Weinberger et al., 1987). Yet, to date only major life events have been studied within the stress-injury literature (Coddington & Troxell, 1980; Cryan & Alles, 1983; Kerr & Minden, 1988; Lysens et al., 1986; May et al., 1985). Anderson and Williams (1988), observed that "one weakness of earlier stress-injury studies is that they only examined stress within the framework of life events scales." They stated that "the relationship of daily hassles to athletic injury needs to be investigated, but it may be necessary to develop an athletic daily hassles scale since the generalizability of the DHS to athletes is probably questionable" (p. 300).

The purpose of this study was to develop a daily hassles scale unique to athletes, the Athletic Daily Hassles Scale (ADHS), and to compare its predictive ability in relation to athletic injury occurrence with the Social and Athletic Readjustment Rating Scale (SARRS), which measures major life events of athletes.

The following chapter presents the procedures that were employed regarding selection of subjects, experimental measures, test procedures, data collection, and treatment of data.

Subjects

A definite life stress-athletic injury relationship has consistently been demonstrated among football players (Coddington & Troxell, 1980; Cryan & Alles, 1983; Passer & Seese, 1983). The subjects for this study included male collegiate football players from five local junior colleges (i.e., College of San Mateo, DeAnza College, Foothill College, Gavilan College, and West Valley College). Although 187 subjects had originally volunteered, attrition reduced this total to 78 (i.e., subjects without missing data). There appeared to be several reasons for this dropout rate. First, motivational levels seemed to be inconsistent. Players may have responded to the first questionnaire, but skipped the second and/or third administration. This may have been due to boredom with having to answer the same questionnaire three consecutive times. Although all the coaches agreed to allow their players to participate, several lacked motivation for the completion of the study. As a consequence these coaches were not strict with their players, and did not make team meetings mandatory for participation in the upcoming games; attrition was thus noted as a result. Second, debilitating

injuries may have played a part in accounting for some attrition. Injured athletes may have been unable to attend or may have been excused from attending team meetings. Third, disciplinary and academic ineligibility problems arose among certain team players, hence removing them not only from the team but also from participation in the study.

The descriptive data for the subjects who completed all questionnaires are summarized in Table 1. The rationale for deciding to study college-level football players rather than high school players was that each of these colleges employs at least one full-time certified athletic trainer, as well as a team physician. The presence of qualified healthcare practitioners at these sites on a daily basis insured the accuracy and consistency of injury evaluation.

Recruitment Procedures

The initial step in acquiring volunteer subjects for this study involved contacting the football coaches and athletic trainers for each school by letter, explaining the purpose of the study and asking for their cooperation and assistance with the study (Appendix A). All letters were followed up by phone calls to confirm their intent or to answer any questions. All subjects who agreed to volunteer completed an informed consent form (see Appendix B) prior to entering the study. Confidentiality was maintained for each of the athletes by referring only to the last four digits of each subject's social security number rather than by the

Table 1

Descriptive Data For Subjects (N = 78)

Variables	Mean	SD
Age (yr)	19.80	1.57
Weight (lbs)	194.04	29.11
Height (in.)	72.06	2.25
Year in School	1.30	0.47
DMISS1[a]	2.03	5.05
DMISS2[b]	4.14	7.39
DMISS3[c]	2.31	5.20
TDMISS[d]	8.48	12.15
TDMISSI[e]	8.79	14.72
TINJ[f]	0.95	0.95
TINJI[g]	1.35	.60

Note. Means and standard deviations are for all subjects unless otherwise indicated in the footnotes.

[a]Days of Missed Practice/Games during the first 30 day period for all subjects.

[b]Days of Missed Practice/Games during the second 30 day period for all subjects.

[c]Days of Missed Practice/Games during the third 30 day period for all subjects.

[d]Total days of Missed Practice/Games for all subjects due to injury for the entire season.

[e]Total Days of Missed Practice/Games for injured subjects only for the entire season (N = 34).

Table 1 - Continued

Descriptive Data for All Subjects (N= 78)

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[f]Total # of injuries for all subjects for the entire season.

[g]Total # of injuries for injured subjects only for the entire seasion (N = 34).

person's name when checking life event and daily hassle scores against injury records. All coaches and non-participating players were dismissed prior to test administration.

Measures

Development of the Athletic Daily Hassles Scale. A daily hassles scale that is unique to athletes was developed following the procedures that were used to convert the Social Readjustment Rating Scale (SRRS) to the Social and Athletic Readjustment Rating Scale (SARRS) (Bramwell et al., 1975). As in Bramwell's article (1975), the bases for all modifications to the DHS (see Appendices D-3 and D-4) were derived from: a) preliminary questionnaires sent to collegiate and professional athletes, asking them to list events in their careers which influenced their personal and athletic life; b) questionnaires given to collegiate football players asking them to list factors that they thought would or did influence their performance and behavior, and c) the athletic experience of the investigator. Face validity was established in two ways. First, questionnaire items were specifically directed toward collegiate football players. Second, the questionnaire was given to two experts in the field who concurred on the final wording of the instrument.

The Athletic Daily Hassles Scale (ADHS) developed for this study by the author is included as Appendix D-4. An

asterisk to the left of specific items shows where modifications were made. Certain words were changed to better apply to an all male athlete population. For example, "concerns about pregnancy and menstrual problems" were dropped for obvious reasons. "Hassles from boss" was modified to "hassles from coach(es)."

Questionnaire Modification Procedures. First of all, the questionnaire was given to several colleagues and acquaintances (not necessarily athletes or football players) simply to critique questionnaire format, content, expression and importance of the items, and whether questions should be added or deleted. Verbal and written feedback was used in order to establish consensual validity.

After necessary modifications were made to the questionnaire, a sample of college football players was selected. The questionnaire was administered to these athletes, once again for feedback on format, content, and expression of the items, but also to determine if the items were specifically meaningful to this population.

SARRS. To measure major life events unique to athletes, subjects were asked to respond to the SARRS (see Appendix D-2), which was originally developed by Bramwell et al.(1975). This modified version of Holmes & Rahe's (1967) original 43-item SRRS (see Appendix D-1) is specifically designed for college athlete populations. Like the original scale, it is an objective instrument for measuring and

weighing a variety of stressful life events that athletes have experienced in the past 12 months.

ADHS. To measure chronic daily hassles specific to athletes, subjects were asked to respond to each of the items in the modified Daily Hassles Scale, the Athletic Daily Hassles Scale.

Test Procedures and Data Collection

In accordance with Cryan and Alles' (1983) methodology, the SARRS and ADHS pencil-and-paper questionnaires were administered to the football players at a team meeting one week before the start of the Fall 1989 playing season. Brief definitions of major life events and daily hassles were given. A standard set of detailed instructions (see Appendix C) were followed for each of the groups prior to their completion of the measures. The SARRS was administered only once, since it covers life events experienced during the preceding 12 months. The ADHS was administered at the end of each month throughout the football season during a scheduled team meeting, for a total of three times (i.e., September, October, and November).

SARRS. Subjects were asked to check each major disturbing stressful event they have experienced on the SARRS and, in addition, estimate the total number of these events they have dealt with in the last year (12 months).

ADHS. Subjects were asked to indicate on the ADHS sheet (with a circle) each daily hassle that they had

experienced within the last month (Kanner et al., 1981). Subjects were then asked to look at the numbers to the right of the items they had circled, in order to indicate a number 1, 2, or 3 to show severity of the particular item (e.g., 1 = somewhat severe, 2 = moderately severe, 3 = extremely severe). If a hassle did not occur within the last month they were instructed NOT to circle it. As in the SARRS, each subject was asked to indicate the total number of times a particular hassle had occurred during each month.

Injury Records. For future analysis, documentation of days of missed practice due to athletic injury were accurately maintained by an assigned athletic trainer at each of the colleges. The National Athletic Injury/Illness Reporting System (NAIRS) was used to classify severity of injuries as minor, moderate, or major (Coddington & Troxell, 1980; Cryan & Alles, 1983). Modified NAIRS injury abstract forms (see Appendix E-1) were used as the injury data collection instrument for this investigation. Since all case abstracts were filled out by the assigned athletic trainer, he/she was taught how to fill out the abstracts by the investigator prior to the initiation of any data collection.

Treatment of the Data

The answer sheets for the SARRS and ADHS were hand scored.

SARRS. A Life Change Unit (LCU) for each subject was

obtained by multiplying the number of times an event occurred by its mean value and then summing all the scores (Greenberg, 1983). For consistency of measurement, a frequency count of the number of stressful events checked was also obtained.

ADHS. Three summary scores for each subject were generated for analysis: 1) frequency, a simple count of the number of items checked, 2) cumulated severity, the sum of the three point severity ratings; and 3) intensity, the cumulated severity divided by the frequency. The latter score is an index of how strongly or intensely the average hassle is experienced, regardless of the number (frequency) of hassles checked (Kanner et al., 1981).

Statistical Analysis

The hypothesis that the ADHS would be a better predictor of days of missed practice due to athletic injury than the SARRS was tested by computing a Pearson Product-Moment Correlation between each stress scale and the days of missed practice. Only one correlational technique was performed on the SARRS and days of missed practice/games for each subject, since this scale was administered only once. The ADHS results were analyzed separately by correlating each subject's stress score with subsequent days of missed practice/games for each month proceeding administration of this scale. Correlations were performed for each month, as well as for the total five month stress

results, examining frequency, severity, and intensity separately. Comparisons of correlations were made between the SARRS and the ADHS.

Summary

A significant relationship has been identified between stress and illness; daily hassles are better predictors than major life events of these illnesses (Kanner et al., 1981; Monroe, 1983; Weinberger et al., 1987). As previously stated, in the stress-injury literature only major life events have been investigated (Coddington & Troxell, 1980; Cryan & Alles, 1983; Kerr & Minden, 1988; Lysens et al., 1986; May et al., 1985). Therefore, the purpose of this study was to develop a daily hassles scale unique to athletes (ADHS) and to compare predictive values (in relation to athletic injury occurrence) of this hassles scale with the SARRS, which measures major life events of athletes.

CHAPTER IV

RESULTS

The means and standard deviations for the SARRS and each of the three ADHS administrations are summarized in Table 2.

The intercorrelations computed between the SARRS, the ADHS, and the days of missed practice (DMISS) during each of the three 30 day collection periods are summarized in Table 3. It should be noted that the SARRS was administered only once at the initiation of the practice/playing season while the ADHS was administered in three successive intervals (i.e., once every 30 days for 3 successive months). The only correlation which proved significant ($p < .05$) was between the first administration of the ADHS and the second block of days of missed practice (DMISS2), although the strength of the association was weak at best. Additionally, it should be noted that both positive and negative correlations were found, without any apparent pattern, and that with the one exception noted above, all appeared to fluctuate very close to zero.

Table 4 displays the results of intercorrelations between the SARRS and the three ADHS administrations. With the exception of the correlation between the SARRS and the third administration of the ADHS (ADHS3), all the correlations were significant. The relationship between the first and second administration of the ADHS proved to be the

strongest (r = .77, p<.001) which suggests that the ADHS has a reasonably high level of test-retest reliability.

Table 2

The Means and Standard Deviations for the Social and Athletic Readjustment Rating Scale (SARRS) and The Athletic Daily Hassles Scale (ADHS)

Scales	Mean	SD
SARRS[a]	184.56	131.39
ADHS1[b]	64.85	44.40
ADHS2[c]	74.53	83.46
ADHS3[d]	61.50	57.18

[a]Social and Athletic Readjustment Rating Scale.

[b]Athletic Daily Hassles Scale-First Administration.

[c]Athletic Daily Hassles Scale-Second Administration.

[d]Athletic Daily Hassles Scale-Third Administration.

Table 3

Intercorrelations between each Stress Scale and Days of Missed Practice During Each Thirty Day Period[a].

Scale	DMISS1	DMISS2	DMISS3
SARRS	-.29	-.11	.25
ADHS1	-.09	.25*	.23
ADHS2	-.04	.26	-.04
ADHS3	-.04	.12	-.15

[a]As indicated by a number 1, 2, or 3.

*significant at $p < .05$

Table 4

Table of Intercorrelations between the SARRS and Administration of each Athletic Daily Scale.

Subscale	SARRS	ADHS1	ADHS2	ADHS3
SARRS	-	.40*	.49*	.42
ADHS1		-	.77*	.54*
ADHS2			-	.54*
ADHS3				-

*significant at $p < .05$

CHAPTER V

DISCUSSION AND CONCLUSIONS

Discussion

The hypothesis that the ADHS would prove to be a better predictor of days of missed practice due to athletic injury, than would the SARRS, was not confirmed by this study. Rather, as noted in Chapter IV, neither of these scales appeared to be a useful predictor of days of missed practice due to injury. That is, all the intercorrelations between the ADHS and the SARRS and days of missed practice were low. As it can be seen in Table 3, these correlations appeared to fluctuate positively and negatively around zero in an apparently random fashion.

Although this study replicated the methodology employed by Cryan and Alles (1983) insofar as investigating major life events and their relationship to athletic injury using the SARRS, the results of their investigation do not coincide with the findings of this research. Specifically, Cryan and Alles (1983) employed a modification of Holmes and Rahe's (1967) earlier methodology which used the SARRS. The SARRS was administered once to football players at the beginning of the season as was done in this study. Cryan and Alles (1983) concluded that college football players who experienced high life stress were significantly more likely to sustain an injury resulting in days of missed practice than players who had encountered only low or minor life

stresses. Bramwell et al. (1975) also noted that a proportionate risk of being injured could be accurately predicted from SARRS scores within a sample of 75 college football players.

There are several plausible explanations for the divergent results of this study from those mentioned above. First, the sample size was smaller than that of the Cryan and Alles (1983) study. Second, Cryan and Alles (1983) did not focus their data collection exclusively on athletic injuries, but instead included illnesses as well (i.e., "any injury or illness that kept an athlete from participating on the performance day (game or practice) following the day of the injury occurrence, was reportable" p. 55). Hence, it would appear to be difficult at best to differentiate between the contribution made by injuries and that made by illness to the resulting days of missed practice. Additionally, these investigators chose to employ a chi square technique in order to analyze their data instead of the more powerful correlational technique employed in this study. Third, the mean SARRS calculated by Cryan and Alles (1983) for both of their groups are substantially higher than those found for this study that are reported in Table 2. It maybe that they were under unusually high levels of stress, thus their sample and that of this study were not comparable with respect to initial levels of stress. Fourth, as Kerr and Minden (1988) note, life stress does not

have uniform effects on people. Further they state, that the same stressful life event will leave some suffering physically and psychologically, while other individuals will demonstrate resolute resistance. Finally, Kobasa, Maddi, and Courrington (1988) point out the role of psychological hardiness as a mediating factor in life stress. It is possible that the subjects of this study were somewhat hardier than those of the other investigations mentioned previously.

Although the results of this study support the null hypothesis, they appear to indicate that lower levels of stress are not associated with injury. If higher levels of stress were reported for each subject, perhaps a greater number of days of missed practice may have been the result.

Conclusions

Even though all correlations between Days of Missed Practice and the ADHS were low, daily hassles may prove to have some promise in predicting the occurrence of athletic injuries. The mean correlation between SARRS and Athletic injury is negative ($\underline{r}$ = -.05) while the mean correlation of the ADHS and injury is in the positive, expected, direction ($\underline{r}$ =.09). Therefore, while there is no significant difference, the ADHS is at least a slightly better predictor. Further research is necessary with the ADHS to obtain a more accurate estimate of its predictive value. Additional studies should employ a larger sample with a

prospective methodology of some considerable duration.

REFERENCES

REFERENCES

Anderson, M. B., & Williams, J. M. (1988). A model of stress and athletic injury: Prediction and prevention. Journal of Sport & Exercise Psychology, 10, 294-306.

Blackwell, B., & McCullagh, P. (1990). The relationship of athletic injury to life stress, competitive anxiety and coping resources. Athletic Training, 25, 23-27.

Bramwell, S. T., Masuda, M., Wagner, N. N., & Holmes, T. H. (1975). Psychosocial factors in athletic injuries: Development and application of the Social and Athletic Readjustment Rating Scale (SARRS). Journal of Human Stress, 1, 6-20.

Coddington, R. D., & Troxell, J. R. (1980). The effect of emotional factors on football injury rates--a pilot study. Journal of Human Stress, 6, 3-5.

Creed, F. (1985). Invited review: Life events and physical illness. Journal of Psychosomatic Research, 29, 113-123.

Cryan, P. D., & Alles, W. (1983). The relationship between stress and college football injuries. Journal of Sports Medicine, 23, 52-58.

Girdano, D. A., & Everly, G. S., Jr. (1986). Controlling stress and tension: A holistic approach. New Jersey: Prentice-Hall.

Greenberg, J. S. (1983). Comprehensive stress management. Dubuque, IA: Wm. C. Brown Company Publishers.

Hanson, S. J., & McCullagh, P. (1992). The relationship of personality characteristics, life stress, and coping resources to to athletic injury. Journal of Sport & Exercise Psychology, 14, 262-272.

Holmes, T. H., & Rahe, R. H. (1967). The Social Readjustment Rating Scale. Journal of Psychosomatic Research, 11, 213-218.

Kanner, A. D., Coyne, J. C., Schaefer, C., & Lazarus, R. S. (1981). Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. Journal of Behavioral Medicine, 4, 1-39.

Kerr, G., & Minden, H. (1988). Psychological factors related to the occurrence of athletic injuries. Journal of Sport & Exercise Psychology, 10, 167-173.

Kobasa, S., Maddi, S., & Courrington, S. (1988). Personality and constitution as mediators in the stress-illness relationship. Journal of Personality and Social Psychology, 22, 368-378.

Kraus, J. F., & Conroy, C. (1984). Mortality and morbidity from injuries in sports and recreation. Annual Review of Public Health, 5, 163-192.

Lazarus, R. S. (1984). Puzzles in the study of daily hassles. Journal of Behavioral Medicine, 7, 375-389.

Lysens, R., Vanden Auweele, Y., & Ostyn, M. (1986). The relationship between psychosocial factors and sports injuries. Journal of Sports Medicine, 26, 77-84.

May, J. R., Veach, T. L., Southard, S. W., & Herring, M. W. (1985). The effects of life change on injuries, illness, and performance in elite athletes. In N. K. Butts, T. T. Gushiken, & B. Zarin (Eds.), The elite athlete (pp. 171-179). New York: Spectrum.

Mish, F. C. (Ed.). (1983). Webster's ninth new collegiate dictionary. Springfield, MA: Merriam-Webster.

Monroe, S. M. (1983). Major and minor life events as predictors of psychological distress: Further issues and findings. Journal of Behavioral Medicine, 6, 189-205.

Passer, M. W., & Seesé, M. D. (1983). Life stress and athletic injury: Examination of positive versus negative events and three moderator variables. Journal of Human Stress, 9(4), 11-16.

Petrie, T. A. (1993). Coping Skills, Competitive trait anxiety, and playing status: Moderating effects on the life stress-injury relationship. Journal of Sport & Exercise Psychology, 15, 261-274.

Rahe, R. H. (1968). Life-change measurement as a predictor of illness. Proceedings of the Royal Society of Medicine, 61, 1124-1126.

Rahe, R. H., Mahan, J. L., Jr., & Arthur, R. J. (1970). Prediction of near-future health change from subjects' preceding life changes. Journal of Psychosomatic Research, 44, 401-406.

Rahe, R. H., Meyer, M., Smith, M., Kjaer, G., & Holmes, T. H. (1964). Social stress and illness onset. Journal of Psychosomatic Research, 8, 35-44.

Sarason, I. G., Johnson, J. H., & Siegel, J. M. (1978). Assessing the impact of life changes: Development of the life experiences survey. Journal of Consulting and Clinical Psychology, 46, 932-946.

Weinberger, M., Hiner, S. L., & Tierney, W. M. (1987). In support of hassles as a measure of stress in predicting health outcomes. Journal of Behavioral Medicine, 10(1), 19-31.

Williams, J. M., Hagget, J., Tonymon, P., & Wadsworth, W. A. (1986). Life stress and prediction of athletic injuries volleyball, basketball, and cross-country running. In L. E. Unestahl (Ed.), Sport psychology in theory and practice. Orebro, Sweden: Veje.

Williams, J. M., Tonymon, P., & Wadsworth, W. A. (1986). Relationship of life stress to injury in intercollegiate volleyball. Journal of Human Stress, 12(1), 38-43.

APPENDIX A

SAMPLE INTRODUCTORY LETTERS SENT TO COACHES AND ATHLETIC TRAINERS

August 8, 1989

Mr. Stan Peters
Head Football Coach
Athletics Department
Laney College
900 Fallon Street
Oakland, CA 94607

Dear Mr. Peters:

I am currently working on my master's thesis research under the direction of David Furst, Ph.D., Rod Harter, Ph.D., ATC, and Robert A. Hicks, Ph.D. The intent of this study is to investigate new methods of screening for potential athletic injuries to football players, and the subsequent prevention/reduction in the number of injuries that occur. Reduction in the number of injuries will obviously benefit the individual athlete and your own team's ability to perform well.

We would like to enlist your cooperation by allowing the administration of two pencil and paper questionnaires to your football players at prescheduled team meetings once per month during the coming football season (August through December). Completion of the questionnaires requires a total of only five to ten minutes. These questionnaires may help us to predict who might be likely to get injured during the season.

With your permission and also that of each athlete and the cooperation of your team athletic trainer, scores from each questionnaire will be compared to injury occurrence of each athlete. Of course, confidentiality will be maintained by referring to a code number rather than each player's name.

As the football season is approaching quickly, I will be following up this letter with a brief phone call. I will be happy to answer any questions you may have at that time. Thank you for your time and consideration of this matter.

Sincerely,

Shelley Orlando
408/924-5658

David Furst, Ph.D.
Thesis Advisor

August 8, 1989

Mr. Greg Smith, ATC
Head Athletic Trainer
Athletics Department
Laney College
900 Fallon Street
Oakland, CA 94607

Dear Mr. Smith:

I am currently working on my master's thesis research under the direction of Rod Harter, Ph.D., ATC, David Furst, Ph.D.,
and Robert A. Hicks, Ph.D. This study will involve investigating two methods of screening for potential athletic injuries in football players and the subsequent (prevention) decrease in the number of injuries that occur.

We would like to enlist your assistance in maintaining injury records of each football player (e.g., type, location, severity, frequency) during the coming football season (August through December). A simplified one page version of the National Athletic Injury/Illness Reporting System (NAIRS) will be the form used for recording injuries. Your assistance in maintaining these injury records would be of utmost importance. Of course, confidentiality will be maintained by referring to a code number rather than each player's name when comparing questionnaire scores with injury records.

As the football season is approaching quickly, I will be following up this letter with a brief phone call. I will be happy to answer any questions you may have at that time. Thank you for your time and consideration of this matter.

Sincerely,

Shelley Orlando
(Wk) 408/924-5658

Rod Harter, Ph.D., ATC

APPENDIX B

INFORMED CONSENT

INFORMED CONSENT

Consent to Participate in
Major Life Events vs. Daily Hassles Study

Name (Please Print)_____ Date_____
School_____

1. Procedures

I hereby authorize Shelley Orlando, 1) to collect data from me regarding my major life events (from within the last year) and my daily hassles (from within the last month), and 2) to review my athletic related medical records as kept by the athletic trainer and days of missed practice and/or games during the period thereafter.

I understand that I will be asked to complete two pencil and paper questionnaires, the Social and Athletic Readjustment Rating Scale (SARRS) and the Athletic Daily Hassles Scale (ADHS). Initially, both the ADHS and the SARRS will be administered at a scheduled team meeting in the month of September. Thereafter, only the ADHS will be administered at pre-scheduled monthly team meetings during, October, and November of 1989.

I understand that the investigator will provide instructions both verbally and in written form prior to administration of the questionnaires. Each questionnaire should take no more than five to ten minutes to complete.

2. Discomforts and Risks

Discomforts associated with the above procedures may include tense or stressful feelings in regard to the specific events remembered.

3. Benefits

This study may benefit me, the athlete, by providing an organized evaluation of my major life and daily hassle stress levels.

4. Inquiries

I understand that the investigator, will answer any questions pertaining to the test procedures or my participation. If I wish further explanations or if I have any questions about this study, I can contact Shelley Orlando, at 408/924-5658. Should I have any further questions regarding this study, I can contact either Dr. David Furst, thesis advisor, Department of Human Performance, at 408/924-3039, or Dr. Serena Stanford, Associate Academic Vice President for Graduate Studies and Research, at 408/924-2480.

5. Withdrawal of Consent

I understand that participation in this study is voluntary. I further understand that I can withdraw my consent and discontinue participation in the project at any time and without prejudice.

_____ (initial here)

6. Confidentiality

I agree that the data generated from these experiments may be used for scientific purposes, including publication or presentation at professional meetings, with the understanding that my identity will not be revealed unless expressly consented thereto.

_____ (initial here)

I have read this form and have had the instructions explained to me. I understand the questionnaire procedures and freely consent to participate in this study.

APPENDIX C

STANDARDIZED INSTRUCTIONS

STANDARDIZED INSTRUCTIONS

A. Introduction
   1. Give my name and background information

B. Explanation

   1. Purpose of study
   2. Estimate time involved (each questionnaire = approximately 5-10 minutes)
   3. Volunteer Basis
   4. Dismiss all coaches and non-participating players
   5. Hand out questionnaires and sharpened pencils
   6. Answer any questions
   7. Have all volunteers read and sign Informed Consent Forms

C. Administration of Questionnaires (Read Instructions Verbatim)

   1. SARRS
      a. Indicate ONLY those major life events that have happened to you within the last 12 months by circling the Ranking number at the left of each item.
      b. If a major life event occurred more than once during the last year indicate how many times in the left-hand margin next to each item (eg., 2x,3x,4x).
      c. If an event did not occur then do NOT circle it.

   2. ADHS
      a. Circle ONLY those hassles that have happened to you within the past month.
      b. Look at the numbers on the right of the items you circled. Indicate by circling a 1,2, or 3 how SEVERE each of the circled hassles has been for you in the past month.
      c. If a hassle occurred more than once during the past month, indicate how many times in the left-hand margin, (e.g., 2x,3x, 4x).
      d. If a hassle did not occur in the last month do NOT circle it.
      e. If any hassles occured that were not listed then please write them in.
      f. List last four digits of social security number.
      g. List any days of missed practice or games due to injury or illness NOT reported to the Athletic Trainer.

F. Conclusion

   1. Thank the subjects
   2. Collect all pencils, questionnaires, and <u>signed</u> Informed Consent Forms

APPENDIX D

QUESTIONNAIRES

D-1 Social Readjustment Scale (SRRS)

D-2 Social and Athletic Readjustment Rating Scale (SARRS)

D-3 Daily Hassles Scale (DHS)

D-4 Athletic Daily Hassles Scale (ADHS)

APPENDIX E

INJURY/ILLNESS DATA FORMS, DEFINITIONS AND CODES

E-1 Injury/Illness Data Collection Form [Modified National Athletic Injury Reporting System (NAIRS) Abstract Form]

E-2 National Athletic Trainer's Association (NATA) Injury/Illness Definitions

E-3 Body Part and Condition Codes (Adapted from the NAIRS Reporting System)

INJURY/ILLNESS DATA FORM

School Code:___ Page___ of___ for Week ___

Player ID#	Date of Onset MM/DD/YR	Date of Return MM/DD/YR	Session	Episode of Injury/ Illness	Nature	Mechanism	Body Part Code	Condition Code
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School

1. De Anza
2. Foothill
3. San Mateo
4. West Valley
5.
6.

Session

1. Practice
2. Practice Scrimmage
3. Game (Home)
4. Game (Away)

Nature of Injury

1. New Injury
2. Reinjury, from this season
3. Reinjury, from last season
4. Complication of Episode __
5. Chronic Injury

Mechanism

0. Unknown
1. Direct Impact
2. Indirect Force
3. Torsion
4. Stretch
5. Impingement
6. Overuse
7. Shearing
8. Other, Spontaneous
9. Other, Insidious (Gradual Onset)
10. Illness

Surface Condition

1. Normal
2. Icy
3. Wet
4. Slippery (Non-wet)
5. Muddy
6. Rain
7. Irregular

Orlando/Thesis '89

NATA INJURY/ILLNESS DEFINITIONS

For consistency and reliability of data collected it is important that common definitions be used by all those involved in the data collection process. The following definitions will be used to help the recorder complete the necessary form with accuracy and understanding:

REPORTABLE INJURY/ILLNESS: Injuries and illnesses meeting **ANY** of the following definitions are REPORTABLE, even if not sport-related. This means that a Case Report must be filed.

(1) ANY INJURY WHICH CAUSES CESSATION OF CUSTOMARY PARTICIPATION IN THE CURRENT SES SION (GAME OR PRACTICE) AND WHICH PREVENTS THE PLAYERS'S RETURN TO THAT SESSION IS REPORTABLE.

*ILLUSTRATION : An athlete receives an injury in a practice or a game which requires their removal for the remainder of that session. Even if the athlete returns the next day, the injury **IS REPORTABLE.***

*ILLUSTRATION: An athlete who is injured in a game on Friday and does not return to that game, but returns to practice on Monday, when there is no practice on the weekend, **IS REPORTABLE** under this definition.*

(2) ANY INJURY WHICH CAUSES CESSATION OF A PLAYER'S CUSTOMARY PARTICIPATION FOR ONE PARTICIPATION-DAY FOLLOWING THE DAY OF ONSET IS REPORTABLE.

*ILLUSTRATION: An athlete injures an ankle in the game on Friday. There is no Practice on Saturday or Sunday, but the athlete misses Monday and Tuesday. This **IS REPORTABLE** with Friday's date as the Day of Onset and Tuesday as the Day of Return.*

(3) ANY BRAIN CONCUSSION IS REPORTABLE IF IT REQUIRES CESSATION OF A PLAYER'S PARTICIPATION FOR OBSERVATION BEFORE RETURNING TO PLAY.

PARTICIPATION (RETURN TO PARTICIPATION): A player is "participating" if he has health supervisory clearance for engaging in activities that are generally expected of teammates.

*ILLUSTRATION 1: If a player is allowed to "test" the injury in practice but they find they cannot fully tolerate the session and are removed from the remainder of practice, they are **NOT** considered to be Returned To Participation.*

*ILLUSTRATION 2: If a player is allowed to workout with the team but only under conditions that do not require the use of the injured body part, they are **NOT** considered to be Returned To Participation.*

*ILLUSTRATION 3: An athlete who has been fully Returned To Participation after recuperating from an injury, but is reinjured is listed as **RETURNED** to Participation from the first injury and is now listed as **OUT** for the reinjury if it meets the reportable definition.*

ILLUSTRATION 4: A player who has returned to practice, has had the Returned to Play date filled in on the Case Report and then is injured the next day, would have a new case filled out the new injury if that injury meets the reportable definition.

BODY PART CODES

01 Head (Skull/Scalp/Brain)
02 Face (Eyebrow/Eyelid)
03 Eye/Orbit
04 Ear
05 Jaw/Chin (Mandible/Maxilla)
06 Teeth/Mouth
07 Nose
08 Throat
09 Neck (Cervical Spine/Brachial Plexus
10 Shoulder (Scapula/Humeral Head & Neck)
11 Clavicle (Acromio/Sterno-)
12 Axilla
13 Upper Arm
14 Elbow (Distal Humerus/Proximal Radius-Ulna)
15 Forearm (Radius-Ulna/Carpals)
16 Wrist (Distal Radium-Ulna/Carpals)
17 Hand (Metacarpals)
18 Thumb
19 Fingers
20 Chest (Ribs/Lungs/Sternum/Breast)
21 Heart
22 Upper Back (Thoracic Spine)
23 Lower Back (Lumbar Spine)
24 Coccyx/Sacrum
25 Abdomen
26 Spleen
27 Liver
28 Pancreas
29 Kidney
30 Prostate
31 Bladder
32 Gonads
33 Genitalia
34 Anus/Rectum
35 Hip (Ilium/Femoral Head & Neck)
36 Groin (Pubis/Ischium)
37 Thigh (Femur)
38 Meniscus
39 Knee (Femoral & Tibial-Fibula/Talus)
40 Patella
41 Shin (Tibia)
42 Calf (Fibula)
43 Ankle (Distal Tibia-Fibula/Talus)
44 Foot (Tarsal/Metatarsal)
45 Heal (Calcaneus)
46 Large Toe
47 Toes

NON SPECIFIC

48 Multiple Injuries (3)
49 Psychological
50 Neurological
51 Spinal Cord
52 Respiratory
53 Skin
54 Lymphatic
55 Secretory Glands
56 Peripheral Circulatory
57 Gastrointestinal Tract
58 Connective Tissue
59 Systemic

CONDITION CODES

ACUTE INJURIES.

0. General Trauma
Examples: Abrasion, Contusion, Puncture, Laceration, Bursitis, Tenosynovitis/Tendinitis (Acute), Synovitis/Capsulitis (Acute), Vascular Trauma, Muscle Cramps/Spasm

1. Neurotrauma
Examples: Concussion, Nerve Contusion, Nerve Disorder, Nerve Dislocation, Nerve Laceration

2. Burn
Examples: 1st, 2nd, 3rd Degree Burn, Thermal, Chemical, Electrical Burn; Friction Blister

3. Sprain
Examples: 1st, 2nd, 3rd Degree Sprain; Dislocation; Subluxation; Synthetic Ligament Failure

4. Strain
Examples: 1st, 2nd, 3rd Degree Strain; Tendon Avulsion, Severance or Sublux; Necrotic/Degeneration

5. Fracture
Examples: Simple, Open, Avulsion Fx, Fx-Dislocation, Epiphyseal Plate Separation, Stress Fx, Greenstick, Osteochondral, Comminuted, Other

ILLNESSES/CONDITIONS

6. Miscellaneous Musculoskeletal Disorders

6.1 Inflammation
Examples: Epiphysitis, Apophysitis, Periostitis, Spondylitis, Epicondylitis, Fasciitis/Tendinitis, Synovitis/Capsulitis, Osteochondritis, Osteomyelitis

6.2 Complication/Disorder
Examples: Osteochondritis Dissecans, Chondromalacia, Arthritis, Exostosis, Calcification, Synovial Hernia, Myositis Ossificans, Muscle Herniation, Facial Herniation

6.3 Tumor
Examples: Bone Cyst, Bone Defect, Bone Fibroma, Bone Tumor, Chondrosarcoma, Osteochondroma, Chondroblastoma, Osteogenic Sarcoma, Osteoid Osteoma

6.4 Condition, Other
Examples: Joint Loose Bodies, Disc Rupture, Spondylolysis, Spondylolisthesis, Bunion, General Degenation, Developmental Defect, Musculoskeletal Weakness, Musculoskeletal Malformation

7. Drug/Chemical Illness
Examples: Non-drug Chemical, Alcohol, Prescribed Drug, Opiate, Cannabis, Hallucinogen, Poisoning, Overdose, Adverse Reaction

8. Illnesses, Other
Examples: General Stress, Congenital, Non-drug Allergy, Abscess, Infection, Non-communicable, Communicable Disease, Benign Tumor

CATASTROPHIC INJURIES/ILLNESSES

9. Severe Permanent Disability
Examples: Death, Quadriplegia, Paraplegia, Monoplegia/Hemiplegia, Chronic Cerebral Damage, Amputation, Loss of Organ/Function, Debilitation